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Huge Soviet Satellite's Maneuvering Elicited Special U.S. Tracking Effort

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WASHINGTON, Jan. 14 — The Soviet Union recently launched one of the largest satellites in the history of its space program, a device that required special tracking efforts by the Air Force, according to a spokesman for the North American Aerospace Defense Command.

The spokesman, Kay Cormier, said today that the Air Force "had to bring in extra specialists" to follow the satellite after its launching Sept. 28. She said there was no precedent for the extensive maneuvering the satellite accomplished once in orbit.

"We assume it was launched on a Proton booster," said Marcia Smith, an expert on Soviet space programs at the Library of Congress's Congressional Research Service. The Proton rocket is the largest operational Rus-

sian booster, capable of lifting 50,000-pound cargoes into low orbits around the Earth.

The American space shuttle can put about 32,000 pounds into a position similar to that reached by the Proton-launched satellite in September. The Proton is comparable to the Titan 3 boosters used by the United States Air Force to launch communications and reconnaissance satellites.

Frequent Passes Over U.S.

Mrs. Cormier said the satellite, which the Russians designated Cosmos 1,603, is in a roughly circular orbit about 528 miles high. Its orbit is inclined 71 degrees from the equator, she said, which would enable it to make frequent passes over the United States.

Such orbital characteristics have in the past been typical of Soviet electronic intelligence gathering devices, which eavesdrop on communications and weapons testing.

The Air Force plans to use the space shuttle this month to launch a large electronic intelligence satellite into a fixed position 22,300 miles over the Equator. From its position, the satellite could pick up signals of military interest from the ground. Since the 1960's both the United States and the Soviet Union have used such devices to eavesdrop on communications.

Big Fuel Capacity

The Russian satellite, which the Soviet news agency Tass described in September only as "carrying scientific equipment," went through wide variations in orbit after it was launched, Mrs. Cormier said. "In this case, there wasn't a historical data base to associate with it," she said. "In order to track it, we had to make extra special effort."

According to figures that appeared in the aerospace trade press after the September launching, the satellite first entered an orbit about 115 miles high inclined slightly more than 51 degrees above the Equator. After a day, a self-contained rocket lifted it to its present altitude, but at an angle of about 66 degrees. It then maneuvered again to its current position.

Technicians at the Air Force facility in Colorado were unable to follow the satellite continuously as it maneuvered, Mrs. Cormier said.

Such radical maneuvers, which would normally be unnecessary in placing an object into a specific region of space, would require large amounts of fuel to propel the satellite from one orbit to another. Use of the Proton booster, believed to be unprecedented in putting up a single Russian satellite, would allow such quantities of fuel to be carried along.

"It could be an engineering test of a new upper stage," said Marcia Smith, referring to the rocket that would fire the satellite from orbit to orbit.

According to the testimony of American military officials before Congress, making valuable satellites maneuverable is one of the primary methods under study for protecting them from antisatellite weapons.